

CLAIMS

1. A balloon for a medical device comprising:
a polymer matrix material; and
5 a plurality of fibers distributed in the matrix material to provide reinforcement thereof, the fibers being distributed in a selected direction relative to the balloon axis and composed of material which has a greater tensile strength than the matrix material.
2. A balloon as in claim 1 wherein the fibers are distributed in the matrix material helically relative to the balloon axis.
- 10 3. A balloon as in claim 2 wherein said fibers are cores of polymeric material coextruded with the matrix polymer material.
4. A balloon as in claim 2 wherein the bulk elongation core polymeric material is 150% or less.
5. A balloon as in claim 2 wherein the core polymeric material has a bulk
15 elongation less than the matrix material when oriented in the direction of the longitudinal axis.
6. A balloon as in claim 1, the balloon having a wall composed of a plurality of laminate layers, at least one layer of which comprises said polymer matrix material and said fibers.
- 20 7. A balloon as in claim 6 wherein said laminate layers comprise an alternating series of fiber-containing and fiber-free layers.
8. A balloon as in claim 7 having at least 7 of said laminate layers.
9. A balloon as in claim 6 wherein the fibers are distributed in the matrix material helically relative to the balloon axis.
- 25 10. A balloon as in claim 9 wherein said fibers are cores of polymeric material coextruded with the matrix polymer material.
- 11 A balloon as in claim 9 wherein said fibers are LCP fibers having a diameter of from 0.01 to about 10 microns.
12. A balloon as in claim 6 having a body portion wherein the fibers are
30 oriented substantially parallel to the longitudinal axis of the balloon.
13. A balloon as in claim 12 wherein the fibers are LCP fibers having a

diameter of from 0.01 to about 10 microns.

14. A balloon for a medical device comprising from 7 to 50 laminate layers of polymer material.

15 A balloon as in claim 14 comprising an alternating series of (A) layers
5 composed of a single polymer material and (B) layers composed of a blend of a matrix polymer material and an LCP polymer.

16. A balloon as in claim 15 wherein the single polymer material and the matrix polymer material are the same.

17. A balloon as in claim 15 wherein the single polymer material is a
10 compliant or semi-compliant polymer material.

18 A balloon as in claim 15 wherein the ratio A/B of the total thickness of the two types of layers, (A) and (B) respectively, is from about 5 to about 15.

19. A balloon as in claim 18 wherein said ratio is from 8 to 10.

20. A balloon as in claim 15 wherein in the layers (B) the LCP polymer is
15 present in the blend in an amount of from about 5 to about 25 % by weight.

21. A balloon as in claim 14, wherein the balloon has a longitudinal axis, at least some of said laminate layers are formed from an extruded blend of a matrix polymer material and an LCP polymer material, and the LCP polymer forming fibers within the matrix polymer with the fibers oriented substantially in a longitudinal or helical direction
20 relative to the balloon axis.

21 A balloon as in claim 14 comprising alternating laminate layers of (A) a material selected from the group consisting of compliant and semi-compliant polymers and (B) a material formed from a blend of an LCP polymer with a material selected from the group consisting of compliant and semi-compliant polymers.

25 22. A balloon as in claim 21 wherein in said layers (A) and (B) said material selected from the group consisting of compliant and semi-compliant polymers is a member of the group consisting of polyamides and block copolymers comprising polyamide blocks and polyether blocks.